

WHAT IS CLAIMED IS:

1 1. A system for wireless communication within a
2 retail refueling environment, comprising:

3 an in-store controller for processing at least one
4 message relating to a retail refueling environment;

5 a server module, connected to the in-store
6 controller, comprising at least one of a transmitter and
7 a receiver;

8 at least one client module comprising at least one of
9 a transmitter and a receiver;

10 at least one service device, connected to the at
11 least one client module, for processing the at least one
12 message; and

13 a wireless communication link for communicating the
14 at least one message between the at least one of a
15 transmitter and a receiver in the server module and the at
16 least one of a transmitter and a receiver in the at least
17 one client module.

1 2. The system of claim 1, wherein the step of
2 processing further comprises generating the at least one
3 message.

1 3. The system of claim 1, wherein the step of
2 processing further comprises extracting the at least one
3 message.

1 4. The system of claim 1, further comprising a
2 serial interface for connecting the in-store controller to
3 the server module.

1 5. The system of claim 1, further comprising a
2 serial interface for connecting each of the at least one
3 client module to a corresponding one of the at least one
4 service device.

1 6. The system of claim 1, wherein the wireless
2 communication link comprises a spread spectrum
3 communication link.

1 7. The system of claim 1, wherein the at least one
2 service device comprises a tank gauge monitor.

1 8. The system of claim 7, wherein the at least one
2 message comprises refueling tank level information.

3 9. The system of claim 1, wherein the at least one
4 service device comprises a leak detection system.

1 10. The system of claim 9, wherein the at least one
2 message comprises leak detection information.

1 11. The system of claim 1, wherein the at least one
2 message comprises customer transaction information.

1 12. The system of claim 1, wherein the at least one
2 message is formatted according to a protocol link layer
3 for transmission of at least one data packet, the at least
4 one data packet comprising wired connection protocol
5 information for a retail refueling environment.

13 13. The system of claim 1, wherein the at least one
2 service device comprises at least one of a car wash
3 controller, a satellite digital interface unit, and a
4 price board controller.

1 14. A system for wireless communication within a
2 retail refueling environment, comprising:

3 an indoor payment terminal (IPT) for processing at
4 least one message relating to a retail refueling
5 environment;

6 a server module, connected to the IPT, comprising at
7 least one of a transmitter and a receiver;

8 at least one client module comprising at least one of
9 a transmitter and a receiver;

10 at least one peripheral device, connected to the at
11 least one client module, for processing the at least one
12 message; and

13 a wireless communication link for communicating the
14 at least one message between the at least one of a
15 transmitter and a receiver in the server module and the at
16 least one of a transmitter and a receiver in the at least
17 one client module.

1 15. The system of claim 14, wherein the at least one
2 peripheral device comprises at least one of a customer
3 display, a pin-pad, a journal printer, a receipt printer,
4 a keyboard, an input mouse, a touchscreen, a barcode
5 scanner, a cash drawer, a check approval interface, a
6 surveillance camera, and a money order machine.

1 16. The system of claim 14, wherein the wireless
2 communication link comprises a spread spectrum
3 communication link.

1 17. An in-store to forecourt communication system for
2 wireless communication within a retail refueling
3 environment, comprising:

4 a point of sale (POS) network controller for
5 processing at least one message relating to a retail
6 refueling environment;

7 a server module, connected to the POS network
8 controller, comprising at least one of a transmitter and
9 a receiver;

10 at least one client module comprising at least one of
11 a transmitter and a receiver;

12 at least one forecourt controller device, connected
13 to the at least one client module, for processing the at
14 least one message; and

15 a wireless communication link for communicating the
16 at least one message between the at least one of a
17 transmitter and a receiver in the server module and the at
18 least one of a transmitter and a receiver in the at least
19 one client module.

1 18. The in-store to forecourt communication system
2 of claim 17, wherein the step of processing further
3 comprises generating the at least one message.

1 19. The in-store to forecourt communication system
2 of claim 17, wherein the step of processing further
3 comprises extracting the at least one message.

1 20. The in-store to forecourt communication system
2 of claim 17, further comprising a serial interface for
3 connecting the POS network controller to the server
4 module.

1 21. The in-store to forecourt communication system
2 of claim 17, further comprising a serial interface for
3 connecting each of the at least one client module to a
4 corresponding one of the at least one forecourt controller
5 device.

6 22. The in-store to forecourt communication system
7 of claim 17, wherein the at least one message formatted
8 according to a protocol link layer for transmission of at
9 least one data packet, the at least one data packet
10 comprising wired connection protocol information for a
11 retail refueling environment.

12 23. The in-store to forecourt communication system
13 of claim 17, wherein the wireless communication link
14 comprises a spread spectrum communication link.

15 24. The in-store to forecourt communication system
16 of claim 17, wherein the POS network controller comprises
17 a customer access terminal (CAT) network controller.

18 25. The in-store to forecourt communication system
19 of claim 24, wherein the at least one forecourt controller
20 device comprises a customer access terminal (CAT) controller
21 board.

1 26. The in-store to forecourt communication system
2 of claim 25, further comprising at least one user
3 interface device communicating with the CAT controller
4 board via a wireless interface.

1 27. The in-store to forecourt communication system
2 of claim 17, wherein the POS network controller comprises
3 a pump network controller.

1 28. The in-store to forecourt communication system
2 of claim 27, wherein the at least one forecourt controller
3 device comprises a pump computer.

4 29. The in-store to forecourt communication system
5 of claim 28, further comprising at least one fuel
6 dispensing component communicating with the pump computer
7 via a wireless interface.

1 30. The in-store to forecourt communication system
2 of claim 17, wherein the POS network controller comprises
3 a radio frequency identification system (RFID) controller.

1 31. The in-store to forecourt communication system
2 of claim 30, wherein the at least one forecourt controller
3 device comprises a dispenser control board (DCB).

1 32. The in-store to forecourt communication system
2 of claim 31, further comprising at least one customer
3 identification device communicating with the dispenser
4 control board via a wireless interface.

1 33. An intra-dispenser communication system for
2 wireless communication within a retail refueling
3 environment, comprising:

4 a dispenser controller device for processing at least
5 one message relating to a retail refueling environment;

6 a server module, connected to the dispenser
7 controller device, comprising at least one of a
8 transmitter and a receiver;

9 at least one client module comprising at least one of
10 a transmitter and a receiver;

11 at least one dispenser peripheral, connected to the
12 at least one client module, for processing the at least
13 one message; and

14 a wireless communication link for communicating the
15 at least one message between the at least one of a
16 transmitter and a receiver in the server module and the at
17 least one of a transmitter and a receiver in the at least
18 one client module.

1 34. The intra-dispenser communication system of claim
2 33, further comprising a serial interface for connecting
3 the dispenser controller device to the server module.

1 35. The intra-dispenser communication system of claim
2 33, further comprising a serial interface for connecting
3 each of the at least one client module to a corresponding
4 one of the at least one dispenser peripheral.

1 36. The intra-dispenser communication system of claim
2 33, wherein the wireless communication link comprises a
3 spread spectrum communication link.

1 37. The intra-dispenser communication system of claim
2 33, wherein the at least one message is formatted
3 according to a protocol link layer for transmission of at
4 least one data packet, the at least one data packet
5 comprising wired connection protocol information for a
6 retail refueling environment.

1 38. The intra-dispenser communication system of claim
2 33, wherein the dispenser controller device comprises a
3 customer access terminal (CAT) controller board.

1 39. The intra-dispenser communication system of claim
2 38, wherein the least one dispenser peripheral comprises
3 a user interface device.

1 40. The intra-dispenser communication system of claim
2 39, wherein the user interface device comprises at least
3 one of a receipt printer, a customer display, a keypad, a
4 cash acceptor, a smartcard reader, a barcode reader, and
5 an automatic refueling robot controller.

1 41. The intra-dispenser communication system of claim
2 33, wherein the dispenser controller device comprises a
3 pump computer.

1 42. The intra-dispenser communication system of claim
2 41, wherein the least one dispenser peripheral comprises
3 a fuel dispensing component.

1 43. The intra-dispenser communication system of claim
2 42, wherein the fuel dispensing component comprises at
3 least one of a price/volume display, a stop button, an
4 emergency stop button, a select-to-start button, a push-
5 to-start button, a nozzle boot microswitch, a valve, a
6 vapor recovery system, and an automatic refueling robot.

1 44. The intra-dispenser communication system of claim
2 33, wherein the dispenser controller device comprises a
3 dispenser control board.

1 45. The intra-dispenser communication system of claim
2 44, wherein the least one dispenser peripheral comprises
3 a customer identification device.

1 46. The intra-dispenser communication system of claim
2 45, wherein the customer identification device comprises
3 at least one of a bezel reader, a card reader, a smartcard
4 transceiver, a tag transceiver, a nozzle antenna reader,
5 a handheld reader, and a vehicle on-board system.

1 47. A method for wireless communication within a
2 retail refueling environment, comprising the steps of:

3 generating at least one message formatted according
4 to a protocol link layer for communication of at least one
5 data packet, the at least one data packet comprising
6 information relating to a retail refueling environment;

7 transmitting the at least one message over a wireless
8 communication link;

9 receiving the at least one message via the wireless
10 communication link; and

11 processing the at least one message to extract the
12 information relating to the retail refueling environment.

1 48. The method of claim 47, wherein the at least one
2 data packet further comprises wired connection protocol
3 information.

1 49. The method of claim 47, wherein the at least one
2 message is further formatted to include a source address
3 field identifying the address of a transmitter module that
4 performs the step of transmitting.

1 50. The method of claim 47, wherein the at least one
2 message is further formatted to include a destination
3 address field identifying the address of a receiver module
4 that performs the step of receiving.

1 51. The method of claim 47, wherein the at least one
2 message is further formatted to include a message command
3 field, the message command field indicating at least one
4 of an attachment of a data packet, an acknowledgment/non-
5 acknowledgment response, an in-range query, and an in-
6 range response.

1 52. The method of claim 47, wherein the at least one
2 message is further formatted to include at least one of a
3 message sequence number field, and a message length field
4 indicating a total length of the at least one message.

1 53. The method of claim 47, wherein the at least one
2 message is further formatted to include at least one of a
3 start-of-text field, an end-of-text field, and a cyclical
4 redundancy check field.

1 54. The method of claim 47, wherein the at least one
2 data packet comprises customer transaction information.

1 55. The method of claim 47, wherein the at least one
2 data packet comprises pump control information.

1 56. The method of claim 47, wherein the at least one
2 data packet comprises customer identification information.